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Office Memorandum • UNITED STATES GOVERNMENT

TO : Chief, Communications Engineering Division DATE: 17 November 1955

FROM : Chief, Communications Operations & Training Division

File Proj 2099 SPOUT

SUBJECT: RS-13 Equipment

1. During the month of October and the first week of November, this Division conducted a series of [redacted] tests between [redacted] and EYE Building. The purpose of these tests was to determine the reliability and operational characteristics of the RS-13 and associated base station equipment first hand so that field and base radio operating procedures could be prepared. 50X1 50X1

2. If the RS-13 is issued without further modification, operating procedures similar to those shown in Attachment A will probably be used. The Calling Clock to be used with this procedure is 55-1 (Attachment B). All these procedures are subject to change as the result of further tests or modification of this equipment.

3. Attachment C summarizes the information concerning the contacts recently conducted. During eight of these contacts, crystal controlled receivers were used at the base station. You will note that there was a very significant decrease in time on-the-air using this reception technique. It is hoped that if the space frequency can be eliminated, as per our memo of 7 November 1955 (O&T 55-692), contact duration will then also approach that which was obtained using crystal controlled receivers. The calling clock used with crystal control at the base station is shown in Attachment D. Message length on these contacts varied between 50 and 150 groups, and a unique cut number code was used for marking tapes. This code is shown on page 15 of Attachment A. Although some difficulties were encountered during the first few contacts, after personnel became familiar with base tuning techniques excellent copy was obtained on almost all contacts.

4. [redacted] of OC-E obtained IBM sensing leads from the local IBM office and these were used with automatic pencils to mark tapes. Results with these leads have been very good and it is planned to use them instead of wooden pencils. In addition to eliminating the need for a large number of wooden pencils with this equipment, their use permits a reduction of approximately 50% in the time required to mark a tape for transmission. 50X1

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5. During these tests, the following difficulties were encountered with the RS-13 and associated material:

a. One cell in the Nickel Cadmium batteries failed, apparently because of an internal short.

b. The TONE-RECEIVE-START-MESSAGE switch froze in the START position during one contact. When the transmitter was removed from the base plate, it was found that the switch detent rack was scratching against the switch mounting post. The mounting post bushing was pushed out a little and the tension on the ball bearing was eased; the bearing and detent rack were also oiled and the switch then functioned properly.

c. An open developed in the hand key plug. The plug had been difficult to extract and after the open was repaired the contact tension was reduced to make plug-in and extraction less difficult.

6. This equipment will be monitored further during the training program which is currently in progress. During this training, the equipment will be at two locations, one of which is approximately 1000 and the other approximately 1500 miles from [redacted] The two weeks during which the equipment will be at each location will provide an excellent opportunity for test of equipment and operating procedures on long paths. At the conclusion of training, you will be advised of the final operating procedures which are issued for this equipment and of any other pertinent information which might be of interest. 50X1

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Attachments: 4